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Isolated hydatid cyst of the diaphragm, a case report

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ABSTRACT

INTRODUCTION: Hydatid disease mainly affect lung and liver. We report a very rare case of hydatid cyst of the diaphragm.
PATIENT INFORMATION: A 25-year-old female presented with vague right hypochondrial pain for 2 months. Clinical Findings showed mild tenderness at right hypochondrial region, Ultrasound showed segment 7 hepatic cystic lesion of about $5 \times 6 \times 7$ centimeters, relatively thick wall, with eccentrically coarse calcification. Computed tomography showed cystic lesion affecting segment 7 of the liver with rims of calcification, appearance is consistent with hydatid cyst of the liver. At laparascopy the liver was found to be normal with a bulging from the lateral border of the diaphragm. Postero-lateral mini-thoracotomy was performed and cyst was found to be inside. Resection was done with direct repair of the diaphragm. The histopathogical examination confirmed hydatid cyst of the diaphragm.
CONCLUSION: Isolated hydatid cyst of the diaphragm is a very rare entity. Pre-operative diagnosis is mandatory to prevent unnecessary excessive incisions.

1. Introduction

Hydatidosis is an endemic disease caused by *Echinococcus granulosus*. It is a common problem mainly in Mediterranean countries. The most frequently involved organs are the liver and lungs. [1] The clinical course of the disease and its complications vary in relation to the size and the location of the cyst. [2] Different therapeutic methods have been suggested to manage this condition including medication, percutaneous aspiration and surgery. [3] Several factors affect the choice of therapy namely the general conditions and co-morbidities of the patient, the number and location of the cysts, the surgeon's experience and the hospital where the procedure is done. [4] Hydatid cyst of the diaphragm is a rarely reported in the literature. In line with the CARE criteria, [5] we report the detail of a case with diaphragmatic hydatid cyst.

1.1. Patient information

A 25-year-old female student presented with vague right hypochondrial pain for 2 months associated with intermittent coughing with negative family, past medical and surgical history.

1.2. Clinical findings

She had mild tenderness at right hypochondrial region, non-feverish, respiratory system was normal. No lymph adenopathy.

1.3. Diagnostic assessment

Hematological tests were normal including white blood cell count. Ultrasound showed segment 7 hepatic cystic lesion of about $5 \times 6 \times 7$ centimeters, relatively thick wall, with eccentrically coarse calcification containing homogenously echogenic fluid, pictures of parasitic disease of the liver. Computed tomography showed cystic lesion affecting segment 7 of the liver with rims of calcification, appearance is consistent with hydatid cyst of the liver (Fig. 1).

1.4. Therapeutic intervention

The patient prepared for general anesthesia, laparascopy was done. The liver found to be normal with a bulging from the lateral border of the diaphragm which was thought to be from the thoracic cavity (Fig. 2). Postero-lateral mini-thoracotomy was performed and cyst was found to be inside diaphragm with same bulging to the plural cavity. Resection was done with direct repair of the diaphragm. The histopathogical examination confirmed hydatid cyst of the diaphragm (Figs. 3 and 4).

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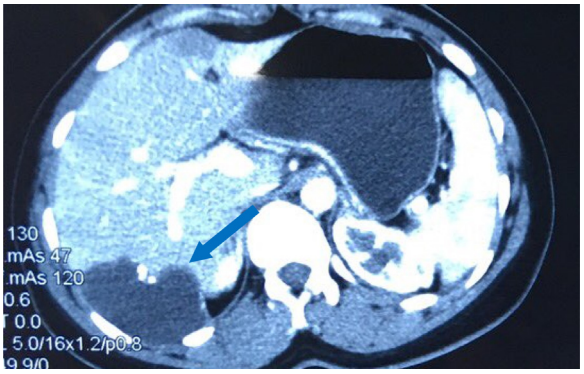

Fig. 1. Cross sectional computed tomography showing thin wall fluid content cystic lesion involving the segment 7 of the liver (the blue arrow).

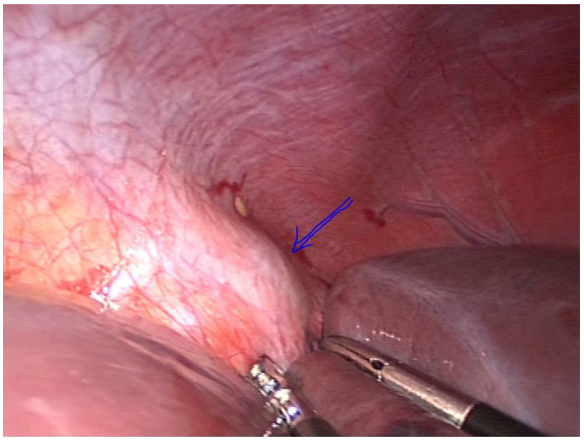

Fig. 2. Laparoscopic view of the lesion bulging through the diaphragm (the blue arrow).

1.5. Follow-up and outcomes

Post-operatively, the patient was put on albendazole tablet (400 mg twice daily for one month). Three months later, the patient was healthy and her chest x.ray was normal.

2. Discussion

Hydatidosis is still an endemic disease in several regions of the world, because of the close association of human with sheeps and dogs. [3] Hydatid cysts of the organs other than liver and lung are rare.

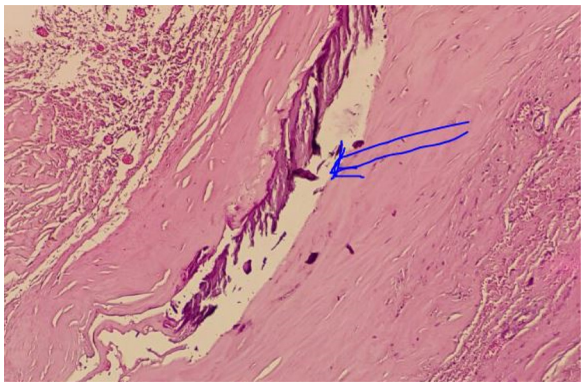

Fig. 4. Pericyst featuring fibrofatty collahenous tissue (blue arrow) with congested blood vessels.

Isolated diaphragmatic hydatid cyst is even rarer with a few reported cases in literatures. [3,6,7] How the parasite reach the diaphragm is not well known till now. According to Pinna et al.,[8] the cyst reaches the diaphragm by direct extension from the liver. This explanation may work in cases with combined diaphragmatic and liver hydatidosis, while in cases like ours in which the diaphragm is the only affected organ, there should be another theory. Vega et al. proposed that the parasite embryos reach the diaphragm through arterial or lymphatic channels. [9] This may explain isolated diaphragmatic hydatid cyst as the current reported case. Generally, chest radiograph and ultrasonography can diagnose hydatid cyst of the lung and liver respectively, while CT scan can exactly determine the location and details of the cysts. [6] Almost all reported cases of isolated diaphragmatic hydatid cyst were diagnosed as a liver or lung hydatid cyst pre-operatively and found to be diaphragmatic intra-operatively. [3,6,7] In our case, ultrasound and CT scan showed liver hydatid cyst with involvement of segment 7 while laparoscopy revealed normal liver with a bulging from the diaphragm. An isolated hydatid cyst of diaphragm is asymptomatic or present with dull pain. Our case presented with vague right hypochondrial pain and cough which was completely relieved after operation. However it should be treated to prevent secondary complications like infection or rupture. [10] Resection of the cyst and pericyst with repair of the diaphragm through thoracotomy is the main line of therapy. [6]

In conclusion, isolated hydatid cyst of the diaphragm is a very rare entity. Pre-operative diagnosis is mandatory to prevent unnecessary excessive incisions. Diagnosis needs high index of suspicion.

2.1. Informed consent

The patient gave informed consent for publication of this case report.

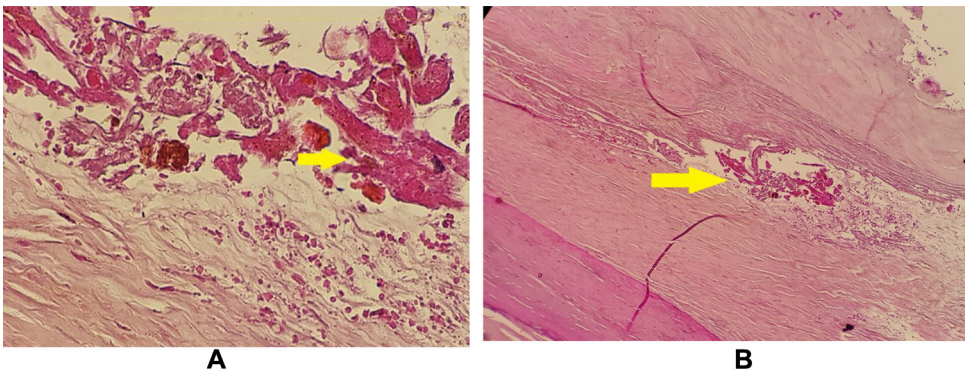

Fig. 3. (A) Endocyst exhibiying granular eosinophilic material with broad capsules embedded within it (yellow arrow) (×10). (B) Same picture with 100 s time magnification.

Conflict of interest

There is no conflict of interest.

Sources of funding

No source to be stated.

Ethical approval

Approval has been taken from bioscience center.

Consent

Consent has been taken.

Author contribution

Abdulwahid M. Salih: Surgeon performed the operation and follow up.

Fahmi H. Kakamad: writing the manuscript and follow up.

Goran M rauf: Examining the specimen, follow up.

Registration of research studies

Researchregistry1596.

Guarantor

Fahmi Hussein kakamad.

References

[1] A. Baram, F.H. Kakamad, A.A. Alwan, Primary posterior mediastinal hydatid cyst mimicking malignant mediastinal neurogenic tumor, Int. J. Case Rep. Images 5 (1) (2014) 54–57.

[2] A.G. Saimato, Medical treatment of liver hydatidosis, World J. Surg. 25 (2001) 15–20.

[3] I. Di Carlo, A. Toro, F. Sparatore, P. Malfa, Isolated hydatid cyst of the diaphragm without liver or lung involvement: a case report, Acta Chir. Belg. 106 (5) (2006) 599–601, http://dx.doi.org/10.1080/00015458.2006.11679960.

[4] N. Agaoglun, S. Turkyimazs, M.K. Arslan, Surgical treatment of hydatid cysts of the liver, Br. J. Surg. 90 (2003) 1536–1541.

[5] J. Gagnier, G. Kienle, D.G. Altman, D. Moher, H. Sox, D.S. Riley, The CARE group, The CARE guidelines: consensus-based clinical case report guideline development, J. Clin. Epidemiol. 67 (2016) 46–51.

[6] Sevval Eren, Refik Ulku, A. Cetin Tanrıkulu, M. Nesimi Eren, Primary giant hydatid cyst of the diaphragm, Ann. Thorac. Cardiovasc. Surg. 10 (2) (2004).

[7] H. Kabiri, S. Al Aziz, A. El Maslout, A. Benosman, Diaphragmatic hydatidosis: report of a series of 27 cases, Rev. Pneumol. Clin. 57 (1 Pt. 1) (2001 Feb) 13–19.

[8] A.D. Pinna, L. Marongiu, S. Cadoni, E. Luridiana, O. Nardello, D.C. Pinna, Thoracic extension of hydatid cysts of the liver, Surg. Gynecol. Obstet. 170 (1990) 233–238.

[9] D.S. De Vega, E. Vazquez, S. Tamames, Hydatid cyst of the diaphragm. Apropos of a case, J. Chir. (Paris) 128 (1991) 76–78.

[10] V. Kumar, S. Shettt, R. Saxena, Primary hydatid cyst of the diaphragm mimicking diaphragmatic tumour: a case report, J. Clin. Diagn. Res. 9 (August (8)) (2015) TD03–TD04.